

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LAWRENCE J. KARAS,
LAWRENCE M. CADELA
and ANDREW P. KAHN

Appeal No. 2004-2019
Application No. 10/301,441

ON BRIEF

Before PAK, KRATZ and DELMENDO, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-3, which are all of the claims pending in this application.

BACKGROUND

Appellants' invention relates to a method of separating impurities from an MTBE stream. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. The method of separating impurities from a MTBE process stream feed comprised mainly of MTBE and

containing a minor quantity of said impurities which comprises contacting the MTBE feed in the liquid phase with a solid contact material consisting essentially of a solid large pore zeolite and recovering a MTBE product stream reduced in content of said impurities from the contact.

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Knifton et al. (Knifton)	5,457,243	Oct. 10, 1995
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Claims 1 and 3 stand rejected under 35 U.S.C. § 102(b) as anticipated by Knifton. Claims 1-3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Knifton.

We refer to the brief and to the answer for a complete exposition of the opposing viewpoints expressed by appellants and the examiner concerning the issues before us on this appeal.

OPINION

Upon careful review of the entire record including the respective positions advanced by appellants and the examiner, we find ourselves in agreement with appellants insofar as the examiner has failed to carry the burden of establishing a prima facie case of anticipation or obviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

As for the § 102(b) rejection of claims 1 and 3 over Knifton, the so rejected claims require that an MTBE¹ stream comprised mainly (chiefly or for the most part)² of MTBE and containing a minor quantity of impurities is contacted in the liquid phase with a solid large pore zeolite. See Examples 1 and 2 of the present specification. A product MTBE stream having a reduced content of impurities is recovered. As evident by a fair reading of appellants' specification, appellants employ the term "impurities" to represent all components other than MTBE. This is made manifest by a review of the specification as a whole including the Examples (see, e.g., Example 1) presented in the specification. While Knifton discloses contacting an MTBE stream with a zeolite material to remove acids from the stream, the MTBE streams disclosed in Knifton include mainly (a major amount of) impurities including methanol (MeOH) and t-butanol (tBA) and a

¹ methyl tertiary butyl ether.

² See, e.g., the definition of "mainly" and "minor" at pages 734 and 775 of the American College Dictionary (1970). A copy of those pages of the dictionary is enclosed with the decision. We note that the definition relative to quantity applies in the context of the claimed subject matter, not any alternative definitions that may be attributed to those terms. In this regard, the terms "mainly" and "minor" are inextricably intertwined in the context of the claimed invention.

minor amount of MTBE.³ See, e.g. Table IV of Knifton, wherein the total impurity content of the treated MTBE stream is greater than the content of MTBE in the stream. At best, Table IV of Knifton shows that in treating a starting material that comprises mainly impurities at 71 hours on stream, a product with the same content of MTBE (42.8 %) is obtained, not a purer product containing increased amounts of MTBE. Consequently, we agree with appellants that Knifton does not describe treating an MTBE stream comprised mainly of MTBE as claimed herein to reduce impurities content therein. It follows that we cannot sustain the examiner's anticipation rejection on this record.

Because the examiner has not otherwise explained how Knifton would have suggested the claimed subject matter, including treating an MTBE stream comprised mainly of MTBE by contact with a solid large pore zeolite to reduce the impurities content of that stream, we will also reverse the examiner's § 103(a) rejection, on this record.

³ At page 2, lines 22 and 23 of appellants' specification, appellants specifically list, inter alia, methanol and tertiary butyl alcohol (t-butanol) as illustrative impurities normally associated with MTBE.

CONCLUSION

The decision of the examiner to reject claims 1 and 3 rejected under 35 U.S.C. § 102(b) as anticipated by Knifton and to reject claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over Knifton is reversed.

REVERSED

PETER F. KRATZ
Administrative Patent Judge

ROMULO H. DELMENDO
Administrative Patent Judge

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PAK, Administrative Patent Judge, dissenting.

I respectfully dissent from the majority. I would affirm the examiner's Sections 102(b) and 103(a) rejections. My reasons follow.

The question as to whether Knifton would have rendered the claimed subject matter anticipated within the meaning of 35 U.S.C. § 102(b) or obvious within the meaning of 35 U.S.C. § 103 is dependent on proper construction of the scope of the claims on appeal. As such, I must first properly determine the meaning of the disputed claim language in the claims on appeal to determine their scope. See Gechter v. Davidson, 116 F.3d 1454, 1457, 1460 n.3, 43 USPQ2d 1030, 1032, 1035 n.3 (Fed. Cir. 1997); In re Paulsen, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). I am mindful that during prosecution of a patent application, the words in claims are given the broadest reasonable meaning in their ordinary usage, taking into account the written description found in the specification. See In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997).

The claimed subject matter on appeal as represented by claim 1⁴ is directed to "[a] method of **separating** impurities from a MTBE process feed stream **comprised** of mainly of MTBE and **containing** a minor quantity of said impurities... with a solid contact material consisting essentially of a solid large pore zeolite and recovering a MTBE product stream reduced in content of said impurities from the contact (emphasis added)." The specification not only does not define the meaning of "mainly" recited in claim 1, but also does not preclude the presence of components other than impurities and MTBE. The specification at page 2 states that:

MTBE as produced commercially, for example...
Illustrative of such impurities are water, methanol, acetone, methyl ethyl ketone (MEK), TBA, and the like.
.. **Other materials** which can be readily separated as by distillation such as diisobutylene may also be present and do not interfere with the separation of the invention. (Emphasis added).

Consistent with the specification, the claimed MTBE process feed stream, by virtue of using the language "comprised" and "containing", is open to the presence of components or materials

⁴ According to the appellants (Brief, page 3), "[t]he claims presently on appeal stand or fall together."

other than MTBE and impurities. See In re Baxter, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981) ("the term 'comprises' permits the inclusion of other steps, elements, or materials"); In re Panagrossi, 277 F.2d 181, 185, 125 USPQ 410, 413 (CCPA 1960) (the term "containing" does not preclude the presence of components not recited in claims). Also, according to page 717 of Webster's II New Riverside University Dictionary (1994) (attached herewith), the term "mainly" is defined as "[t]he principal or most important part". Further, the phrase "a solid contact material consisting essentially of a solid large pore zeolite" includes a solid large pore zeolite and any other components which do not materially affect the basic and novel characteristics of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976).

The appellants do not dispute the examiner's finding that Knifton discloses treating a MTBE process stream containing, inter alia, MTBE and impurities in the presence of a solid contact material. Compare the Answer in its entirety with the Brief in its entirety. Nor do the appellants argue that Knifton's MTBE process stream does not contain a minor quantity of impurities. See the Brief in its entirety. The appellants only argue that Knifton does not teach or suggest using a MTBE

process stream "mainly of MTBE", reducing the content of oxygenated impurities and using a solid contact material consisting essentially of a solid large pore zeolite.⁵ Id.

Having considered those arguments, I am not persuaded that the examiner has committed any reversible error in his or her decision. I will address the appellants' arguments in seriatim.

First, as indicated supra, the claimed MTBE process stream contains components other than MTBE and impurities. As such, the claim language "mainly" does not require that greater than 50% MTBE be present in the claimed MTBE process stream as implied by the appellants' argument and the majority's opinion. It only requires that MTBE be the principal or most important component compared to other components in the MTBE process stream. Thus, I concur with the examiner that the term "mainly of MTBE," as broadly interpreted, includes the feed stream containing 42.8% MTBE exemplified in Table VI at columns 9 and 10 of Knifton. As is apparent from Table IV, MTBE is the principal component compared to any other individual components in Knifton's feed

⁵ I will limit my discussion to the appellants' arguments. See In re Baxter Travenol Labs., 952 F.2d 388, 391, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991) ("It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for nonobvious distinctions over the prior art.").

stream. Even if such amount is not deemed to be the principal amount, certainly, MTBE is the "most important part" of the feed stream compared to any other components therein as indicated by Knifton. Morris, 127 F.3d at 1055-56, 44 USPQ2d at 1028-29 ("[a]bsent an expressed definition in their specification, the fact that appellants can point to definitions or usages that confirm to their interpretation does not make the PTO's definition unreasonable when the PTO can point to their sources that support its interpretation").

Second, contrary to the appellants' argument at page 4 of the Brief, Knifton's Table IV shows that at 72 hours, MeOH (an oxygen impurity) and organic acids are reduced as required by the claims on appeal. Although the solid contact material is shown to gradually deactivate with time, especially in regard to reducing organic acids (as is apparent from the pH levels of the feed stream at different times), there is no doubt that MeOH and organic acids are removed. Contrary to the majority's position, claim 1 does not require that the concentration of MTBE be increased. It only requires separation or reduction of some impurities.

Third, as acknowledged by the appellants at page 5 of the Brief, Knifton exemplifies a large pore zeolite in Table IV.

Although Knifton further includes 10% cesium on the large pore zeolite as indicated by the appellants at pages 4 and 5 of the Brief, the claim language "consisting essentially of" does not preclude the presence of cesium. As indicated supra, Knifton's large pore zeolite containing 10% cesium, like the appellants' solid contact material, is useful for removing impurities, such as organic acids and MeOH. On this record, the appellants simply have not demonstrated that cesium materially affects the basic and novel characteristics of the claimed solid contact material. In re De Lajarte, 337 F.2d 870, 874, 143 USWPQ 256, 258 (CCPA 1964) (an applicant has the burden of showing that a component in a reference would materially affect the basic and novel characteristics of a claimed composition).

It follows that I would affirm the examiner's Section 102 (b) rejection.

Even were we to interpret "mainly of MTBE" as requiring more than 50% MTBE in the claimed process stream as urged or implied by the majority opinion and the appellants, I find that Knifton would have at least suggested using such process stream in the process of Knifton. Although Knifton exemplifies feed streams containing less than 50% MTBE, it does not foreclose one of ordinary skill in the art from using its process to reduce

organic acids in a feed stream containing any amount of MTBE. Moreover, because both the claimed and Knifton's process streams contain the same or similar components, one of ordinary skill in the art would have reasonably expected that either of them would be useful in Knifton's process. One ordinary skill in the art would have been led to employ Knifton's process to remove organic acids from MTBE feed streams containing greater than 50% MTBE, motivated by a reasonable expectation of reducing organic acid impurities in the feed streams. See also In re Kemps, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996).

Even if the claims on appeal require removal of oxygenated impurities, as urged by the appellant, my conclusion would not be changed. Knifton in Table IV teaches removing at least 0.4% of such impurities. According to page 2 of the specification, the removal of such amount of MeOH is recognized to be very significant in the art. Thus, even if one of ordinary skill in the art is only interested in removing oxygenated impurities, such person would have been led to use Knifton's process for removing oxygenated impurities in the claimed process stream.

It follows that I would affirm the examiner's Section 103(a) rejection as well.

CHUNG K. PAK)	
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